REMARKS

The claims in the application are claims 13-21. All of the claims have been rejected under 35 USC 112 as being indefinite. This rejection is respectfully traversed.

The examiner's suggested amendment of claim 13 has been made.

The examiner's statement that "ambient air is saturated with water" is erroneous except when the relative humidity is 100%, which is essentially what is called for by claim 18. A portion of a scientific encyclopedia is hereto attached. Please see the definition of "humidity."

Claim 13-21 have been rejected under 35 USC 102 (b,e) as being clearly anticipated by Goodwin U.S. 5,284,753 (Goodwin) or Rava et al. U.S. 5,545,531 (Rava). This rejection is respectfully traversed.

The examiner has failed to indicate what element in either reference corresponds to the "non-continuous hydrophobic coating" of the instant claims. Mere inspection of the two references discloses the following.

Rava discloses a method for making a biological chip plate for the analysis of molecular interactions such as in biological samples (see claim 1 and column 1, lines 7 to 11). Rava further teaches that the chip plates can have 96 wells arranged in 8 rows and 12 columns, such as a standard microtiter plate. The probe arrays can each have at least 100; 1000; 100,000 or 1,000,000 addressable features (see column 2, lines 31 to 36). Said chip wafers can be scored with waxes, tapes or other hydrophobic material in the spaces between the arrays, forming cells that act as test wells (see column 8, lines 32 to 34). In column 9 a hydrophilic material is as well disclosed. According to

Figure 4 of the specification said hydrophobic or hydrophillic material is in any case a continuous hydrophobic or hydrophillic coating all over the matrix(wafer). The instant claims require at least one hydrophillic measurement zone which is separated by at least one non-continuous hydrophobic coating. As the coating in the case of Rava is continuous it can not anticipate the instant claims with the non-continuous hydrophobic coating.

Goodwin appears to disclose nothing different or more relevant to the instant claims. In the absence of any specific element being indicated by the examiner, it is impossible for applicants to refute the examiner's statements in any greater detail.

In light of the foregoing amendment and remarks, it is believed that all of the rejections of record have been obviated, and the allowance of this application is respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE IN THE CLAIMS

Please amend claim 13 as follows:

13.(amended) A solid support for analytical measurement methods which [is essentially composed of] comprises an inert solid support material on which hydrophilic measurement zones are separated from one another by at least one non-continuous hydrophobic coating, where the number of measurement points applied per cm^2 of the support is greater then or equal to 10.

COPY OF ALL CLAIMS

13. A solid support for analytical measurement methods which comprises an inert solid support material on which hydrophilic measurement zones are separated from one another by at least one non-continuous hydrophobic coating, where the number of measurement points applied per cm^2 of the support is greater then or equal to 10.

14. A solid support as claimed in claim 13, wherein the hydrophilic measurement zones applied to the support are separated from one another by non-continuous hydrophobic zones in the forms of rings.

15. A support as claimed in claim 13, wherein the support material used is glass, ceramic, quartz, metal, stone, plastic, rubber, silicon or porcelain.

16. A support as claimed in claim 13, wherein a transparent support material selected from the group consisting of glass, quartz, silicon or plastic is used.

17. An analytical measurement method which comprises applying liquid analysis samples in the hydrophilic measurement zones of a support as claimed in claim 13, overlaying the hydrophilic measurement zones with a hydrophobic liquid and performing the analysis.

18. An analytical measurement method as claimed in claim 17, wherein the analytical measurement is carried out in an atmosphere which is virtually saturated with water vapor.

19. An analytical measurement method as claimed in claim 17, wherein the analytical measurement is carried out while cooling the support.

20. The analytical measurement method of claim 17 adapted for diagnostic methods, screening of active substances, combinatorial chemistry, crop protection, toxicology or environmental protection.

21. A solid support as claimed in claim 13, wherein an additional surface loading is applied to the hydrophilic measurement zones.

ATTACHMENT A

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Sybil P. Parker
Editor in Chief

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Human-machine systems The area of knowledge, also known as man-machine systems, dealing quantitatively with the communication and cooperation between people and machines in performing specific tasks. Human-machine systems engineering includes the experimentation techniques, the mathematical theory appropriate to handling data derived from experiments, and the engineering methods for applying this knowledge to the design of machines and systems. The pilot and the airplane, the driver and the automobile, the secretary and the typewriter, the talker and the telephone, the programmer and the computer are examples of human-machine systems. *See* SYSTEMS ENGINEERING.

Though it draws heavily on psychology and physiology, the field uses the language and concepts of engineering to analyze how people receive information through their vision, hearing, touch, and other senses, how they utilize this information to make decisions, and how they implement these decisions with their muscles. Often the response an individual makes in turn affects the new information which is displayed to the senses, thus completing a closed loop of information flow linking the person and machine.

As with pumps, gears, motors, and electronic circuits, engineers seek to describe the human operator in terms of definite input or stimulus quantities and output or response quantities and to connect these quantities by mathematical equations with a view to predicting the behavior of whole human-machine systems. The idea of predicting the behavior of a whole system from a knowledge of how the components are interconnected and what are the input-output equations of these components is at the root of what is commonly called systems theory.

Systems theory does not require understanding the inner workings of the components themselves; it is only necessary to know what that input-output relation is. This is why systems engineers often refer to their components as "black boxes." In the human-machine systems the engineer likewise need not understand the inner workings of the human nervous system—only what the stimulus-response relationship is in quantitative terms. The mathematical model of a person, moreover, need not correspond to the individual's anatomy or physiology in any way. It is only necessary that the black box representing the individual be connectable to those for the machine. Human-machine systems engineering is closely related to the field called human-factors engineering, which applies psychology and physiology to the design of machines but is not as concerned with compatible input-output equations for both humans and machine. *See* HUMAN-FACTORS ENGINEERING; SERVOMECHANISM. [T.B.S.]

Humidification The process of increasing the water-vapor content (humidity) of a gas. This process and its reverse operation, dehumidification, are important steps in air conditioning for human comfort and in many industrial operations. *See* AIR CONDITIONING; COMFORT HEATING; DEHUMIDIFIER; HUMIDITY.

Air (or other gas) can be humidified by direct injection of water vapor (steam) or, more commonly, by the evaporation of liquid water in contact with the airstream. When evaporation occurs, heat is required to provide the latent heat of vaporization. If no external source of heat is provided, either the water or the air, or both, will be cooled. The cooling of water by this process is the basis of operation for industrial cooling towers, whereas evaporative air coolers often used in hot, dry climates depend upon the air-cooling effect. In both these types of apparatus, humidification of the air occurs, although it is not the prime objective of the operation. In units designed primarily for humidification, the incoming air is usually heated to provide the latent heat of evaporation and to permit the air to leave the unit at controlled levels of both temperature and humidity. *See* COOLING TOWER. [A.L.K.]

Humidistat A controller that measures and controls relative humidity. A humidistat may be used to control either humidifying or dehumidifying equipment by the regulation of electric or pneumatic switches, valves, or dampers. Most methods for measuring humidity rely upon the swelling and shrinking of materials, such as human hair, silk, horn, goldbeater's skin, and wood, with increases and decreases in relative humidity.

An electronic humidistat includes a sensing element and a relay amplifier. The sensing element consists of alternate metal conductors on a small, flat plate with a plastic coating. An increase or decrease of the relative humidity causes a decrease or increase in the electrical resistance between the two sets of conductors; the change in resistance is measured by the relay amplifier. *See* HUMIDITY; PSYCHROMETRICS. [J.E.H./R.L.K.]

Humidity Atmospheric water-vapor content, expressed in any of several measures, especially relative humidity, absolute humidity, humidity mixing ratio, and specific humidity.

Relative humidity is the ratio, in percent, of the moisture actually in the air to the moisture it would hold if it were saturated at the same temperature and pressure. It is a useful index of dryness or dampness for determining evaporation, or absorption of moisture. *See* PSYCHROMETRICS.

Absolute humidity is the weight of water vapor in a unit volume of air expressed, for example, as grams per cubic meter or grains per cubic foot.

Humidity mixing ratio is the weight of water vapor mixed with unit mass of dry air, usually expressed as grams per kilogram. Specific humidity is the weight per unit mass of moist air and has nearly the same values as mixing ratio. [J.R.F.]

Humite A homologous series of magnesium nesosilicate minerals with general composition $Mg_{2n+1}(SiO_4)_n(F,OH)_2$. The known species include norbergite, chondrodite, humite, and clinohumite.

The minerals of the humite group have similar physical properties. The luster is resinous, and the color usually light yellow, brown, orange, or red. The pure synthetic Mg end members are colorless. Hardness is 6–6½ on Mohs scale, specific gravity is 3.1–3.2. These minerals are typically found in regionally crystallized marbles. Typical sources are the Grenville-age marbles in New York and Ontario, marble ejecta from Mount Vesuvius, and marbles from central Sweden. *See* SILICATE MINERALS. [P.B.M.]

Humus The amorphous, ordinarily dark-colored, colloidal matter in soil, representing a complex of the fractions of organic matter of plant, animal, and microbial origin that are most resistant to decomposition.

Humus consists of the combined residues of organic materials which have lost their original structure following the rapid decomposition of the simpler ingredients and includes synthesized cell substance as well as by-products of microorganisms. It is not a definite substance and is in a continual state of flux, disappearing by slow decomposition, and being constantly renewed by incorporation of residual matter. With a balance between these processes, humus, though not static, remains relatively uniform in nature and amount in a given soil. It constitutes a reservoir of stabilizing material which imparts beneficial physical, chemical, and biological properties to soil. Fertile soils are rich in humus.

Humus improves the texture of soils. It exerts a binding effect on sandy soils, and loosens the harder, clayey soils, thus increasing their porosity and permeability. It increases the moisture-holding capacity and improves the granular structure by cementing mineral particles into stable crumbs. This helps soils resist the pulverizing and eroding action of wind, water, and cultivation. As a storehouse of elements important to